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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,921

12/12/2003

Vladislav Vashchenko

P05752

2249

7590

05/08/2006

Jurgen Vollrath
588 Sutter Street #531
San Francisco, CA 94102

EXAMINER

JACKSON JR, JEROME

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/734,921

Applicant(s)

VASHCHENKO ET AL.

Examiner

Jerome Jackson Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-16 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3 and 5 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zhang '909.

Zhang shows a "DIAC" device including two p-wells 134 separated by n-wells 132, n isolation layers 120, n+ and p+ regions in the p-wells, and wherein there can be considered a "p-buried layer" at the bottom of the well adjacent the n-isolation layer 120 or a p-buried layer below layer 120 in the substrate region. Claim 1 does not structurally distinguish over Zhang as the recitation "p-buried layer" is broad. For instance there is no recitation the buried layer and well have different dopant concentrations. As such different levels of the well can be considered different "layers". Note also that Zhang teaches multiple devices or multiple "DIACs". Claim 3 is also rejected as there are p-

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regions 192 in a substrate "well" region between the DIACs. Claim 5 is rejected as the connection to regions 192 can be labeled "ground".

Claims 1-3 and 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang '634 in view of MacPherson '715 .

Wang shows a diac structure in figure 3 including first and second wells (p-bases) separated by an n-well (n-well area between the p-bases) and separated from the p-substrate by an n-isolation area (lower part of the n-well), and n+ and p+ regions in the p-bases. The difference between Wang and claim 1 is that applicant claims at least two "DIAC" devices and a p-buried layer. The recitation of multiple DIAC devices is not patentable as there are normally multiple protection devices for each input or output pin of the integrated circuit device and also protection devices for each power line. Accordingly the recitation of multiple "DIAC" devices is fundamentally obvious. The recitation of a p-buried layer under a p-base region is obvious from the suggestions of MacPherson who teaches a thyristor device with a p-base region and a punch-through shield region 460 also of p-type conductivity. The motivation is obviously to prevent punch-through. Claim 1 is obvious structure. Claim 2 is rejected as figure 3 of Wang shows the n+ regions facing each other. Claims 6 and 7 are rejected as the regions in Wang are likewise connected. Claims 8-14 are rejected as they recite obvious connections for ESD devices as Wang.

Claims 1-3 and 5-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang with MacPherson and further in view of Ker '557.

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In regard to recitations of multiple protection structures, metal layers, and a p-well surrounding the diacs, Ker teaches multiple devices and metal layer connections for implementing protection structure. Furthermore, Ker shows a ground or Vss connection to the substrate and suggests all the above for practical implementation of protection structure as Wang with Macpherson.

Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the present drawings are obviously informal. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571-272-1730. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be

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obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JEROME JACKSON
PRIMARY EXAMINER